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Interview Summary	Application No.	Applicant(s)	
	10/058,305	NAKASAKA ET AL.	
	Examiner	Art Unit	
	Hai H. Huynh	3747	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Hai H. Huynh. (3) _____
 (2) Mario A. Costantino. (4) _____

Date of Interview: 01 March 2006.

Type: a) ☐ Telephonic b) ☐ Video Conference
 c) ☒ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
 If Yes, brief description: _____.

Claim(s) discussed: 19,22-24,35 and 40-50.

Identification of prior art discussed: Atago et al (6,286,478).

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: The prior art made of record fails to teach/show a controller that detects a variation in an air-fuel ratio among the plurality of cylinders, and corrects a fuel injection quantity on the basis of the detected variation in the air-fuel ratio and an operation angle of an intake valve of each of the cylinders so as to reduce the variation in the air-fuel ratio when the variation is detected.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.



Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

OLIFF & BERRIDGE, PLC

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February 27, 2006

FACSIMILE TRANSMISSION COVER SHEETTo: Examiner Hai Huynh
Group Art Unit 3747571-273-4844From: Mario A. CostantinoYour Ref.: 10/058,305Our Ref.: 111568Number of Pages Sent (Including cover sheet): 5Prepared By: MAC/ms**Comments:**

Examiner Huynh:

Attached is a proposed request for reconsideration that we wish to discuss at the interview on
Wednesday, March 1 at 1:30 pm.

Mario A. Costantino

Sent By: ms

This facsimile is intended only for the use of the individual or entity named above and may contain privileged or confidential information. If you are not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are notified that any review, dissemination, distribution or copying of this facsimile is prohibited. If you have received this facsimile in error, please immediately notify us by facsimile or telephone, and return the facsimile to us by mail at the above address.

PATENT APPLICATION**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE****In re the Application of****Yukihiko NAKASAKA et al.****Group Art Unit: 3747****Application No.: 10/058,305****Examiner: H. Huynh****Filed: January 30, 2002****Docket No.: 111568****For: CONTROL APPARATUS FOR MULTI-CYLINDER INTERNAL COMBUSTION
ENGINE AND CONTROL METHOD****REQUEST FOR RECONSIDERATION****Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450****PROPOSED****Sir:**

In reply to the December 9, 2005 Office Action, Applicants request reconsideration of this application. Claims 19, 22-24, 35 and 40-50 are pending.

Claims 19, 22-24, 35 and 40-50 stand rejected under 35 U.S.C. §102(e) over U.S. Patent No. 6,286,478 to Atago et al. This rejection is respectfully traversed. Atago et al. does not disclose or suggest the combinations of features recited in the independent claims of this application.

Atago et al. discloses determining an air-fuel ratio for each cylinder (see col. 9, line 63 - col. 10, line 4 and col. 10, lines 52-67) and then determining the air flow based on that determined air-fuel ratio (see col. 10 lines 5-7 and col. 11, lines 1-5). Atago et al. then determines a swirl number (see col. 11, lines 5-12) and determines the intake valve opening timing, the valve opening time (or the predetermined crank angle), and the valve opening lift of the intake valve (see col. 10, lines 8-21 and col. 11, lines 13-24). As described at col. 10,

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lines 48-51 and col. 11, lines 29-39, Atago et al. then corrects the basic fuel injection "according to the determined valve opening timing, the valve opening time and the maximum valve lifting amount." In particular, Atago et al. calculates "a correction coefficient based on the valve opening timing, the valve opening time (or the predetermined crank angle) and the valve opening lift of the intake valve." Atago et al. indicates that the "correction coefficient is a special correction item given in consideration of the influence on the combustion stability of the engine in association with the operation of the intake valve." See col. 11, lines 34-38. As described at col. 7, line 56 - col. 8, line 2, "combustion stability" as used in Atago et al. relates to the effect of changes in the engine load for a given air-fuel ratio.

With respect to all independent claims pending in this application (claims 19, 23, 35, 41, 43 and 46), Atago et al. does not disclose or suggest taking any corrective actions "to reduce the variation in the air-fuel ratio among the plurality of cylinders." Atago et al. does not discuss variation in air-fuel ratio among the plurality of cylinders. While Atago et al. discusses a "target A/F difference of each cylinder" (see, for example, col. 10, line 7), this target A/F difference of each cylinder pertains to "a difference between the regular A/F of the cylinder and the special target A/F for a cold start ... of each cylinder." See, for example, col. 9, lines 52-62 of Atago et al. The target A/F difference does not relate to differences in air fuel ratio among the plurality of cylinders.

Accordingly, Atago et al. does not disclose or suggest "a controller that detects a variation in an air-fuel ratio among the plurality of cylinders" and that "corrects a fuel injection quantity on the basis of the detected variation in the air-fuel ratio and an operation angle of an intake valve of each of the cylinders so as to reduce the variation in the air-fuel ratio when the variation is detected" as recited in independent claim 19, or the similar method steps recited in independent claim 35. Atago et al. does not disclose or suggest that its correction coefficient, which may be calculated based on the predetermined crank angle,

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reduces variation in the air-fuel ratio among the plurality of cylinders. For similar reasons, Atago et al. does not disclose or suggest the claim 23 "controller that reduces a variation in an air-fuel ratio among the plurality of cylinders by correcting a fuel injection quantity," the similar method of independent claim 41, the claim 43 "controller that reduces a variation among the plurality of cylinders on the basis of an operation angle of an intake valve of each of the cylinders," or the similar method of independent claim 46.

Independent claims 23, 41, 43 and 46 are patentable over Atago et al. for the additional reasons that Atago et al. does not disclose or suggest the specific steps recited in these claims, which result in "updating a fuel injection quantity correction coefficient" (claims 23 and 41) or "updating a correction coefficient" (claims 43 and 46) based on a calculated relationship between the operation angle of the intake valve and the "calculated fuel injection quantity correction coefficient" (claims 23 and 41) or the "calculated correction coefficient" (claims 43 and 46). The relationships recited in claims 23, 41, 43 and 46 are not calculated, and thus are not used, in Atago et al. Dependent claims 49 and 50 are further patentable over Atago et al. for this reason as well.

Furthermore, Atago et al. does not disclose or suggest that the amount of correction for reducing the variation is increased as the operation angle of the intake valve is decreased, as recited in dependent claims 22, 24, 40, 42, 45 and 48. These claims thus are patentable over Atago et al. for this additional reason.

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

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Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

PROPOSED

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JAO:MAC/ccs

Date: February 27, 2006

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